n-Core Configuration Tool 2.x
User Manual

Rev. 20150211

Table of contents

1. Introduction 2
2. System requirements 2
3. Configuration options 2
4. Connection 2
5. Main Components 3
   - 5.1. Tree of nodes 3
   - 5.2. Main menu 4
   - 5.3. Log panel 4
   - 5.4. Configuration panel 4
     - 5.4.1. Network 4
     - 5.4.2. Behaviors 6
     - 5.4.3. Rules 9
     - 5.4.4. Locating 10
     - 5.4.5. Data 11
     - 5.4.6. Advanced 12
     - 5.4.7. OBD 13
   - 5.5. Context menu 14
6. Backup 15
   - 6.1. Network and locating parameters 15
   - 6.2. Save behaviors 16
   - 6.3. Save rules 17
   - 6.4. Save OBD queries and OBD parameter 18
   - 6.5. Load a configuration from an xml file 20
7. Additional information 21

1. Introduction

n-CoreConfiguration Tool is a software application that allows configuring and managing the different parameters of the *n-Core Sirius*devices.

Before using this tool, it is recommended to be familiarized with the functionalities of the *n-Core* platform and the technical characteristics of the *n-Core Sirius* devices.

For further information, please, visit www.nebusens.com

2. System requirements

- 32/64-bit PC using MS Windows™ XP/Vista/7/8 or Linux.
- 5MB disk space.
- 128MB RAM.
- 800x600 or higher screen resolution.
- 1 USB host port (incl. USB-to-UART controller), 1 RS-232 port or a LAN/WAN connection.
- *n-Core* DLLs and a valid *n-Core License File* in the execution path of the *n-Core Configuration Tool*.

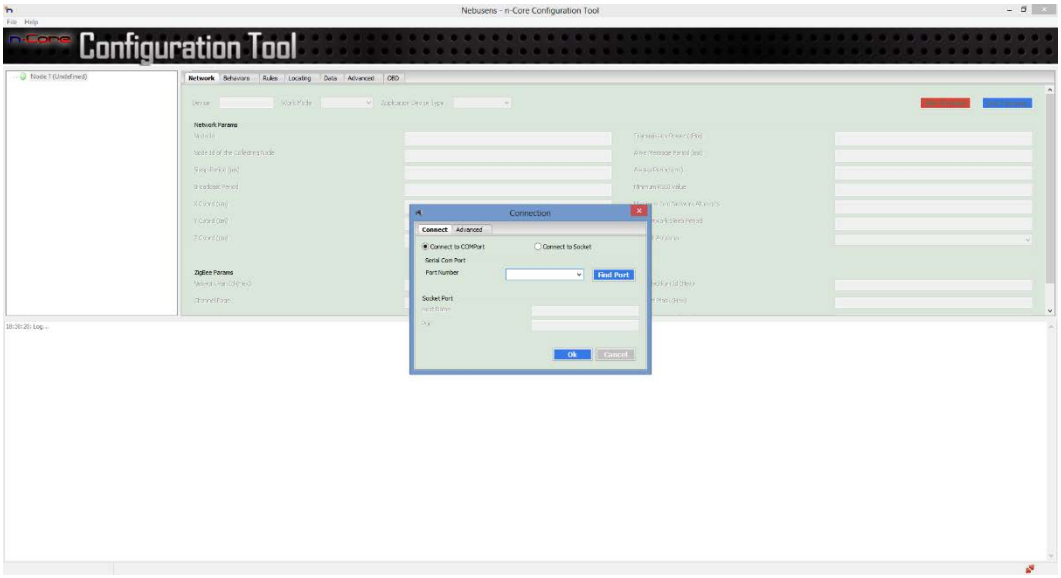
3. Configuration options

There are **two ways** to configure the *Sirius* devices:

1) **Via serial port or socket.** Each device can be configured independently.
2) **Over The Air (OTA).** Allows configuring multiple devices wirelessly connected through the ZigBee network. In this case, it is necessary to connect the coordinator or a collecting node of the network to the USB, RS-232 or TCP/IP port. Sirius devices are preconfigured to join a specific setup network.

4. Connection

Step 1: open the connection window. Click "*File/Connect*" (Ctrl + C) or the icon placed at the bottom right of the main window.



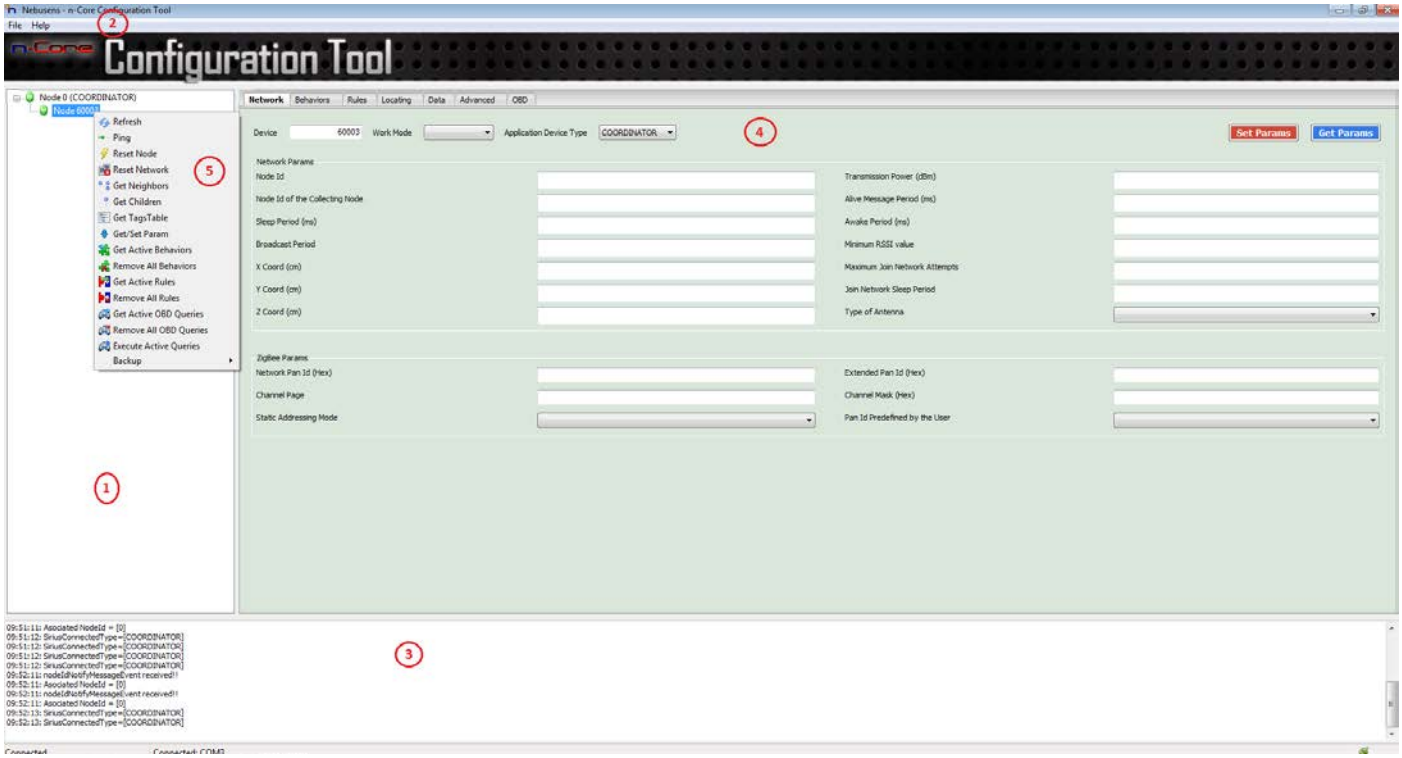
Step 2: select the connection type: serial port (Sirius device connected via USB or RS-232) or socket (Sirius device connected via TCP/IP).

Step 3 (optional): adjust the connection parameters.

Parameter	Description	Default values (Units)
Alive Connection Period	Maintains the connection alive with the node.	60 (seconds) *(0 = do not maintain the connection alive)*
Data Rate	Baud rate of the serial port.	38400 (bauds)
TimeOut	Timeout used for reconnections.	5 (seconds)
Auto-reconnect	Allows auto-reconnecting if the connection is lost (using the established timeout).	True (Boolean)
Deferred Open	Allows opening the port and then listening to the proxy until the real connection of the port is successfully performed.	False (Boolean)
MTU	Maximum Transmission Unit associated to the port.	84 (Bytes)
Bits per Char	Number of bits per character transmitted.	8 (bits)
Parity	Type of parity.	NONE(NONE/ODD/EVEN/MARK/SPACE)
Stop Bits	Number of stop bits transmitted after each character.	1 (bits)
XonXoff	Enable/disable the software flow control.	False (Boolean)
RtsCts	Enable/disable the hardware flow control.	False (Boolean)
Refresh Address	If true, the remote address is resolved in each auto-reconnection.	True (Boolean)

5. Main Components

The *n-Core Configuration Tool* has five main components, which are described as follows.



5.1. Tree of nodes

It shows the active nodes in the ZigBee network. Double click on the nodes to retrieve their information.

5.2. Main menu

Allows accessing the following functionalities:

- **File:**
  - **Connect.** Establishes the connection with the *n-CoreSirius* device.
  - **Disconnect.** Closes the connection with the *n-CoreSirius* device.
  - **Register Messages.** Registers an *event handler* (subroutine that receives the events produced in the interface) to receive and show all the messages that are generated after each execution of a behavior or rule in the nodes in the network.
  - **Show backup:** Displays the backup of the tree of nodes.
  - **Exit.** Closes the connection with the *n-CoreSirius* device and closes the *n-Core Configuration Tool.*
- **Help:**
  - **About.** Shows information related to the *n-Core Configuration Tool*, such as the version, copyright, etc.
  - **Release Notes**. Displays information about new features, bug fixes, etc.

5.3. Log panel

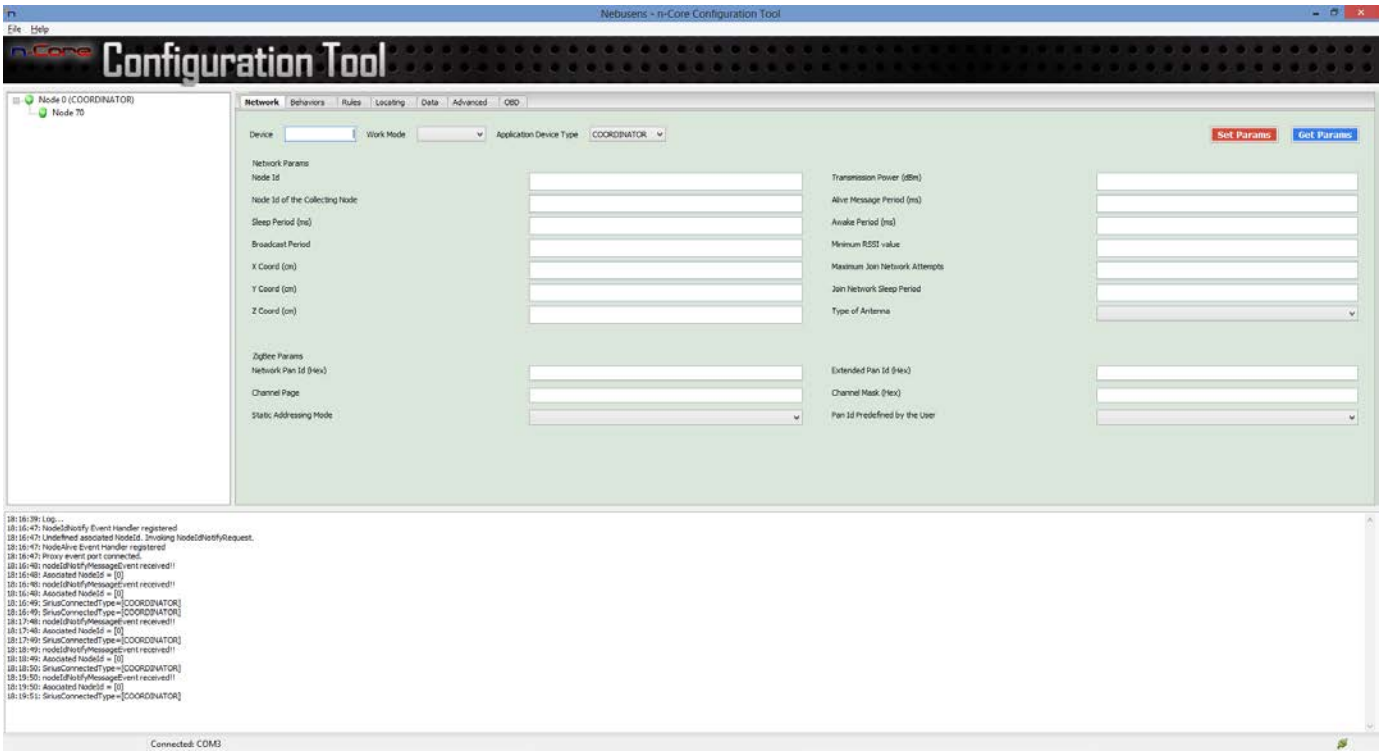
Shows information related to operations that are internally performed during the configuration process (e.g., the state of sent and received commands, errors and warnings in the parameters configuration, errors when establishing a connection, etc.).

5.4. Configuration panel

Allows the configuration of the *n-CoreSirius* devices. Its *tabs* are described next.

5.4.1. Network

This tab allows modifying the parameters related to the management and configuration of the network.

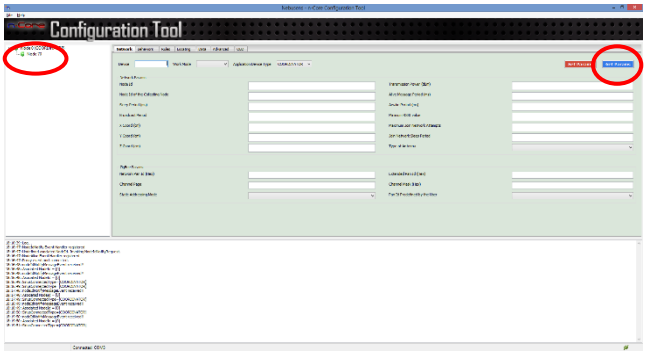


Parameter	Description	Default values (units)
Device	Logical address of the destination node whose parameters are polled or modified	• Coordinator: 0 • Routers / collecting nodes: 1 - 47103 • Tags: 49152 – 65527 (16-bit decimal address)
Work Mode	Operation mode of the *Sirius* device.	Work mode(Setup Mode/Work Mode)
Application Device Type	Device type at the n-Core application level(*coordinator*, *router*, *collecting node*ortag).	(COORDINATOR/ROUTER/TAG/COLLECTOR)
Node ID	Logical address of the device (for example, for changing it).	• Coordinator: 0 • Routers / collecting nodes: 1 - 47103 • Tags: 49152 – 65527 (16-bit decimal address)
Transmission Power	Transmission power.	• 2.4GHz: +3 (from -17 to +3 dBm) • 900MHz: +5 (from -10 to +10 dBm)
Node ID of the Collecting Node	Logical address of the node to which the *Sirius* device sends its frames.	• Coordinator: 0 • Routers / collecting nodes: 1 - 47103 (16-bit decimal address)
Alive Message Period	Period in which the *"node alive"* messages are sent.	10000 (milliseconds)
Sleep Period	Period in which the *Sirius* device is sleeping (*Tags* only).	0 (milliseconds) *(0 = do not sleep)*
Awake Period	Period in which the *Sirius* device stays awake before going to sleep again (*Tags* only).	0 (milliseconds) *(0 = do not keep awake)*
Broadcast Period	Period in which the *Sirius* device sends its broadcast.	0 (milliseconds) *(0 = do not send broadcast)*
Minimum RSSI Value	Minimum RSSI value with which a device must be detected by a router to include the device in its Tags Table.	-100 dBm (from -100 to +3 dBm)
X Coord	Device's X-coordinate.	UNDEFINED (centimeters)
Y Coord	Device's Y-coordinate.	UNDEFINED (centimeters)
Z Coord	Device's Z-coordinate.	UNDEFINED (centimeters)
Maximum Join Network Attempts	The number of attempts the *Sirius* device performs to join the network during the *network start/join phase*, before reporting an internal failure.	4 (attempts)
Join Network Sleep Period	Period in which the *Sirius* device stays asleep before trying to join the ZigBee network again.	0 (milliseconds) *(0 = do not sleep)*
Type of Antenna	Type of antenna (hardware) used for transmitting and receiving data over the air.	INTERNAL (INTERNAL/EXTERNAL)
Network PAN ID	Network identifier. All nodes in the ZigBee network must have the same value.	1234 (16-bit hexadecimal)
Extended PAN ID	Extended network identifier. All nodes in the ZigBee network must have the same value.	1122334455667788 (64-bit hexadecimal)
Channel Page	Type of modulation used by the device. This parameter depends on the devices' working frequency.	• 2.4GHz: (0 = QPSK) • 900MHz: (0 = BPSK; 2 = QPSK)
Channel Mask	It represents the channels bitmask supported by the device depending on the frequency band (900MHz or 2.4GHz).	10000 (32-bit hexadecimal)
Static Addressing Mode	Allows selecting between static or dynamic addressing. Dynamicaddressingautomatically assignsa different addressto each node connected to the ZigBee network.	true (Boolean) *(true means static; false means dynamic)*
PAN ID Predefined by the User	Allows selecting between thePAN IDdefinedby the user or not.	true (Boolean)

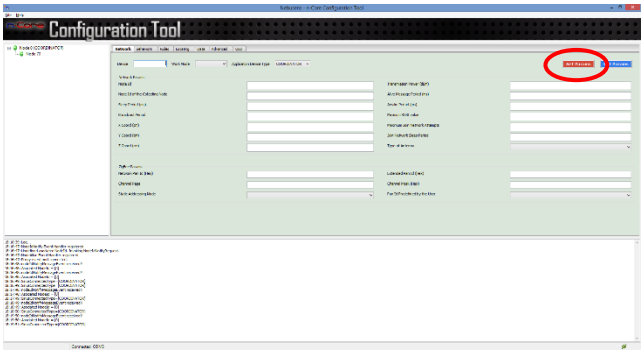
There are two ways to get the network parameters:

1) Double-click on the target node.

2) Selectthe nodein the tree nodes andpress "*Get Params*".



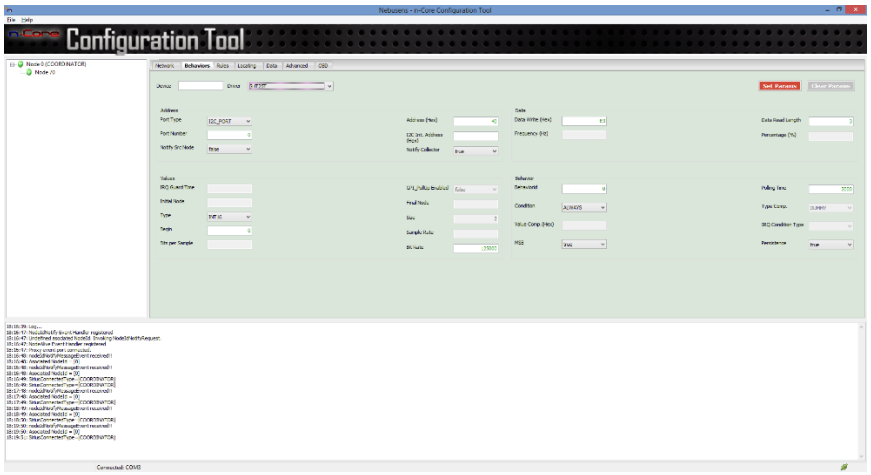
The parametersare automatically receivedfromthe selected deviceandthe corresponding fields are auto-completed.If a parameteris not successfully received, the corresponding fieldis not filled, and this fail is reported viathe***logpanel***. Before changingany of them, it is necessary to obtaintheseparameters, eitherby double-clickingthe device or pressing"*Get Params*".



To store the new parameter values in the device, it is necessary to press "Set Params". The information is automatically sent to the device, which sends back a command response that is stored in the ***logpanel****.*

5.4.2. Behaviors

This tab allows defining*behaviors*on the different ports of each *Sirius*device. **A *behavior* isthe action of reading from or writing toa specific port ona*Sirius*device** (e.g., I²C or GPIO), either by a polling mechanism or in an autonomous way (periodic or under interrupt).



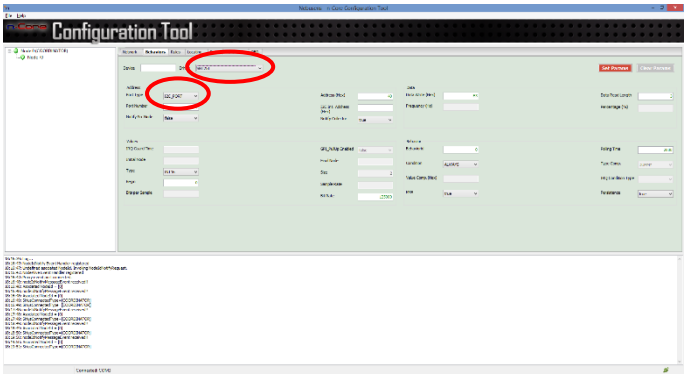
Parameter	Description	Examples (units)
Port Type	*Sirius* device port type.	e.g., I2C_PORT (GPO, GPI, I2C, PWM, ADC, IRQ, BAT, EEPROM, RSSI)
Address	Address of the porton which the behavior is established (e.g., the GPO pin, the I2C bus address, the ADC channel, etc.).	e.g., 4A (8-bit hexadecimal)
Port Number	Identifierof the port (e.g.,ADC1, if there are two ADC chipsets).	e.g., 0 (8-bit decimal)
I2C Int. Address	Internal address when using thel²Cbus.	e.g., AB (0-3 hexadecimal bytes)
Notify Src Node	If messages will besent from thedestination node (where behavior is configured)to the source nodethat hassetthe behavior.	e.g., false (Boolean)
Notify Collector	If messages will besent from thedestination node (where behavior is configured)to its collecting node.	e.g., true (Boolean)
Data Write	Datato be written to the chosen port in the*Sirius*device.	e.g., AABB (array of hexadecimal bytes)
Data Read Length	Length of datato be read from the chosen port in the Sirius device.	e.g., 3 (8-bit decimal)
Frequency	Cycles persecond in thePWMport.	e.g., 100 (Hz)
Percentage	Percentage ofduty cycle in the PWMport.	e.g., 50

		(%)
IRQ Guard Time	Minimum interval between two consecutive IRQs.	e.g., 2000 (ms) *(by default 1500)*
GPI PullUp Enabled	Indicates if the GPI internal pull-up is enabled.	e.g., true (Boolean)
Initial Node	The initial node with respect to which the RSSI measurement is performed.	e.g., 50000 (16-bit decimal address)
Final Node	The "final node" with respect to which the RSSI measurement is performed. If the "initial node" is the same than the "final node", then the measurement is performed only in such node. If the "final node" is higher than the "initial node", then the measurement is performed over a range of nodes.	e.g., 50100 (16-bit decimal address)
Type	Type of token tobeparsed from within the total data buffer to be read. *For example, ifa5 bytes total buffer is received [0xAA 0xBB0xCC0xDD0xEE] using as parameters "Type = UINT16", "Size =2", "Begin = 1", thedatato be parsed is [0xBB 0xCC], representing a "48076" 16-bit unsigned integer.*	(UINT8, UINT16, UINT32, UINT64, INT8, INT16, INT32, INT64, BUFFER, DUMMY) *(DUMMY = no data should be read)*
Size	Indicates the lengthof the token to beparsed from within the total data buffer to be read. *For example, ifa5 bytes total buffer is received [0xAA 0xBB0xCC0xDD0xEE] using as parameters "Type = UINT16", "Size =2", "Begin = 1", thedatato be parsed is [0xBB 0xCC], representing a "48076" 16-bit unsigned integer.*	e.g., 2 (8-bit decimal)
Begin	Indicates the beginning position of the token to beparsed from within the total data buffer to be read. *For example, ifa5 bytes total buffer is received [0xAA 0xBB0xCC0xDD0xEE] using as parameters "Type = UINT16", "Size =2", "Begin = 1", thedatato be parsed is [0xBB 0xCC], representing a "48076" 16-bit unsigned integer.*	e.g., 0 (8-bit decimal)
Sample Rate	Sampling frequencythrough anADCport.	e.g., 9600 (4800, 9600, 19200, 39000 or 77000 samples per second)
Bits Per Sample	Number of bitsper sample inanADCport.	e.g., 8 (8 or 10 bits per sample)
Bit Rate	Bit rate (number of bits transmittedper time unit) through the I²C port.	e.g., 62000 (62000, 125000 or 250000 bps)
BehaviorId	Behavior identifier. *0 = NEW behavior (n-Core assigns a unique identifier perbehavior).*	e.g., 1 (0, 1-10) *(0 = new behavior)*
Polling Time	Behavior'ssampling period (i.e., how often the behavior is performed).	e.g., 2000 (milliseconds)
Condition	It represents the conditionthat must be metso that the behavior can be performed.In reading ports, thiscondition may bedifferent from "*ALWAYS*" or "*NEVER*". Compared toa certain reference value,the result of evaluatingthis comparisonmust be trueso that the behavior sends messages to the collecting node, to the source node, or to provoke a second behavior in a rule to be performed.	e.g., ALWAYS (ALWAYS, NEVER, ==, !=, >=, <=)
Type Comp	Type of the datato be compared with the read token in order to satisfy the behavior's condition. *The type of the value to be compared must match the type of the read tokenfor "==", "!=", ">=" and "<=" conditions; or must be DUMMY for "ALWAYS" and "NEVER" conditions (including write-only behaviors).*	e.g., INT16 (UINT8, UINT16, UINT32, UINT64, INT8, INT16, INT32, INT64, BUFFER, DUMMY) *(DUMMY = no data should be read/compared)*
Value Comp	Value to be compared in order to satisfy the condition.	e.g., 271A (hexadecimal)
IRQ Condition Type	Condition that triggers an interrupt (only for IRQ ports).	e.g., LOW_LEVEL (LOW_LEVEL, HIGH_LEVEL, ANY_EDGE, FALLING_EDGE,RISING_EDGE)
MSB	If the read token is in MSB (Most Significant Byte) order or not	e.g., true (Boolean)
Persistence	Defines if the behavioris storedinEEPROMor not. If enabled, the behavior will remainstoredon the *Sirius* device after being reset or switched off.	e.g., true (Boolean)

To define a behavior follow the next steps:

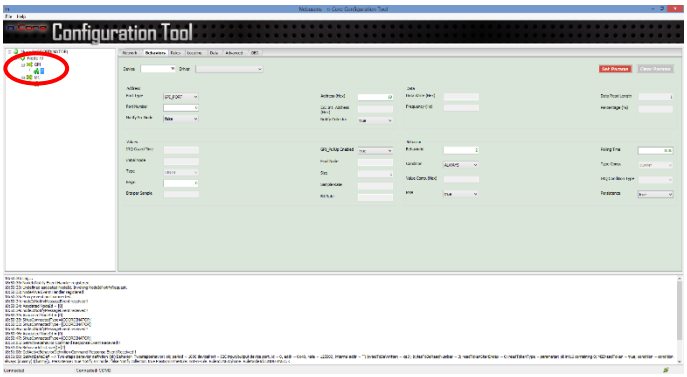
Step 1: select the port type or the Sensor Driver. Some controls will be enabled/disabled or autofilled.

All text boxes include tool tips with information about the type of data to be entered. For example, *uint8*_t data type allows values from *0* to *(2^8- 1)*.



Step 2: select if the behavior is *persistent* or *periodic* and press"*Set Params*". In the *logpanel* it is shown therecord of the information about the sending.

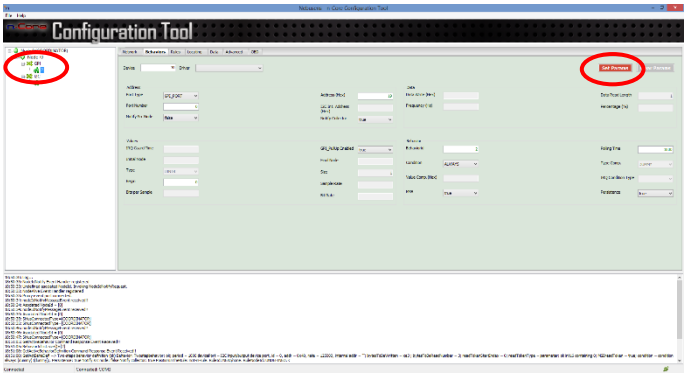
The new behavior appears in the tree of nodes inside the device and under the port type on which the behavior has been defined



To modify a behavior please the next steps:

Step 1: double click on the behavior identifier. The application will automatically fill the fields in the configurationpanelwith the data storedon that behavior.

Step 2: set the new parameters and press "*Set Params*". It is not necessary to modify the *Device* (destination device) and *Behaviorld* (behavior identifier) fields.

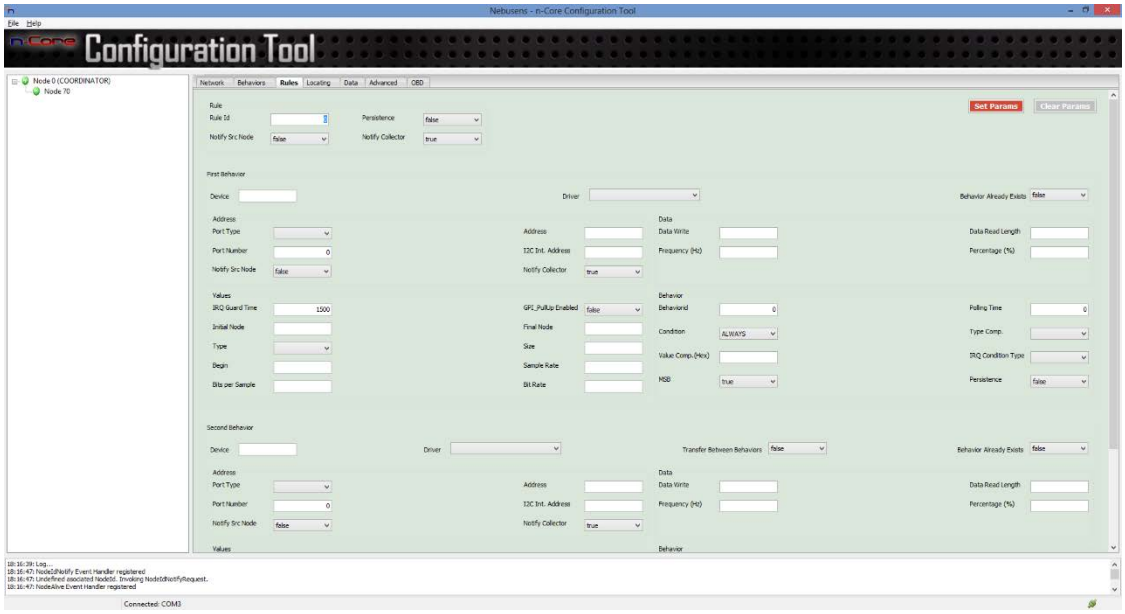


To delete a behavior, right click on the node and select "*Remove Behavior*".

Tip:it is recommended to use nonzero behavior identifiers for large ZigBee networks. This will prevent to create multiple behaviors due to network retries.

5.4.3. Rules

This tab allows defining *rules* on thedifferent portsof each *Sirius* device.**A *rule* isthe concatenation of two behaviors** (e.g., read the I²C of node 1 and then write on a GPO of node 2). The definition ofeachbehavior is doneexactly asexplained inthe previous section.



The additional parameters for *rules* are the following.

Parameter	Description	Examples (units)
Rule ID	Identifierof the rule. *0 = NEW rule (n-Core assigns a unique identifier perdevice).*	e.g., 1 (0, 1-5) *(0 = new rule)*
Persistence	Defines if the rule is storedinEEPROMor not. If enabled, the rule will remainstoredon the *Sirius* device (or devices) after being reset or switched off.	e.g., true (Boolean)
Notify Src Node	If messages will besent from thedestination node (where rule is configured)to the source nodethat hassetthe behavior.	e.g., false (Boolean)
Notify Collector	If messages will besent from thedestination node (where rule is configured)to its collecting node.	e.g., true (Boolean)
Behavior Already Exists ***(First Behavior)***	If the first behavior in the rule existed previously or not. That is, if the first behavior was previously defined in the node or nodes that take part in the rule or if the user is defining at the same time the rule is being defined. If *true*, it is only required to enterthe *DeviceId*and the *BehaviorId*.	e.g., false (Boolean)
Behavior Already Exists ***(Second Behavior)***	If the second behavior in the rule existed previously or not. That is, if the second behavior was previously defined in the node or nodes that take part in the rule or if the user is defining at the same time the rule is being defined. If *true*, it is only required to enterthe *DeviceId*and the *BehaviorId*.	e.g., false (Boolean)
Transfer Between Behaviors	This parameter indicates if the data read by the first behavior will be used as the data to be written by the second behavior. To carry out successfully the transferring data between the two behaviors it is strictly necessary that the first behavior must be a behavior that allows reading data from its port and the second one must be a behavior that allows writing data to its port (e.g., read the temperature and store the value in the EEPROM in other node).	e.g., false (Boolean)

To define a rule follow the next steps:

Step 1: select the device where will execute the first behavior that will take part in the rule that is being defined. This device will also host the rule itself.

Step 2: define the behaviors following the instructions depicted in section 5.4.2 ofthis manual.

Step 3: press "*Set Params*" to store the rule in the device. The first behavior will be always created the moment the rule is defined (and in the same node where the rule is stored). If the second behavior is

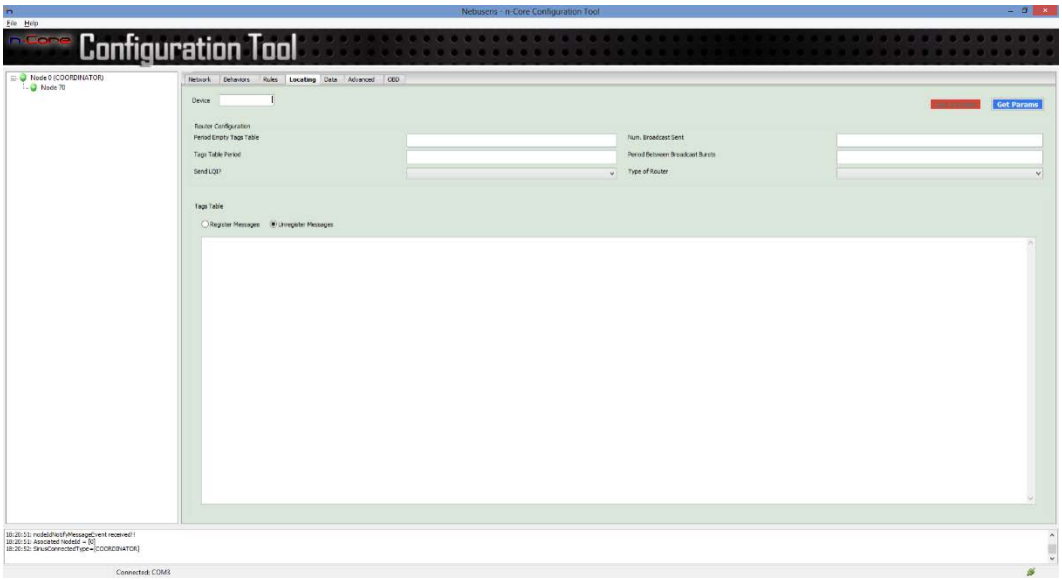
defined in the same node as the rule, then this behavior will be created the moment the rule is defined.However, if the second behavior is defined in a different node from the rule's one, then this behavior will be created after the first behavior is executed.The identifier of the *rule* appears inthe *tree of nodes*.Double click to get the rule information.

To delete a rule, right click on the node and select "*Remove Rule*".

WARNING: The behaviorsthat make upa ruleare automatically deletedwhen you deletethe rule. However, it is highly recommended to clean all the possible behaviors that might have been created within the rule.

5.4.4. Locating

This tab allows defining the parameters related to the *n-Core Locating Engine*.



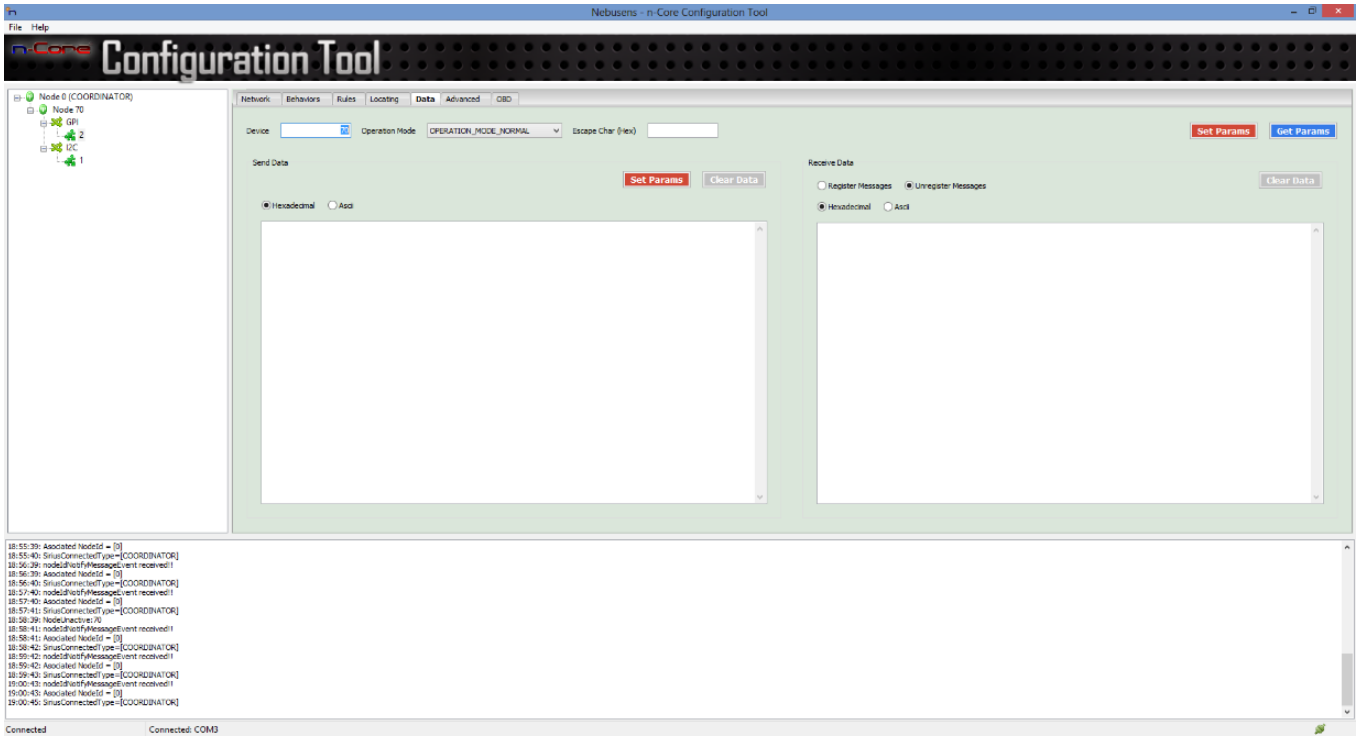
Parameter	Description	Examples (units)
Period Empty Tags Table	Period with which a router sends its tags table when this table is empty of devices.	e.g., 10000 (milliseconds) *(0 = send only non-empty tables)*
Num. Broadcast Sent	Number ofbroadcastbursts to be sent.	e.g., 1 (bursts)
Tags Table Period	Time period used by *routers* whensendingthe*tags* tableto the corresponding *collecting node*.	e.g., 1000 (milliseconds)
Period Between Broadcast Burst	Elapsed time between sending a broadcast burst and sending the next one, if the number of broadcast bursts is higher than 1	e.g., 100 (milliseconds)
Send LQI	If a reader will send LQI information in tags table responses and messages or not.	e.g., false (Boolean)
Type of Router	Indicates the type of RTLS device. *The user only will be able to change the type of RTLS device when the device is a router or mobile router:* • ROUTER⇆*ROUTER_MOBILE* • *Other values: Read-Only parameter.*	e.g., ROUTER (COORDINATOR, ROUTER, COLLECTOR, ROUTER_MOBILE, TAG, END_DEVICE)

Once the parameters have been entered or modified, press "*Set Params*" to save the data in the *Sirius* device. The log panel shows the status.

The "*Register Messages*" option displays information about the *Tags Tables* of each router in the network.

5.4.5. Data

This tab allows sending and receiving frames between two *Sirius* devices within a ZigBee network.



To send data:

Step 1: select the operation mode:

- **Normal.** Data packaged into the data messages received over-the-air by the device will be sent to the USART as the normal way.*No escape char is needed (unused byte).*
- **By esc char**: This operation mode will behave as follows:
  - Data packaged into the data messages received over-the-air by the device will be sent to the USART without n-Core encapsulation.
  - Received data from the USART will be packaged into a data message when the defined *escape character* is received.

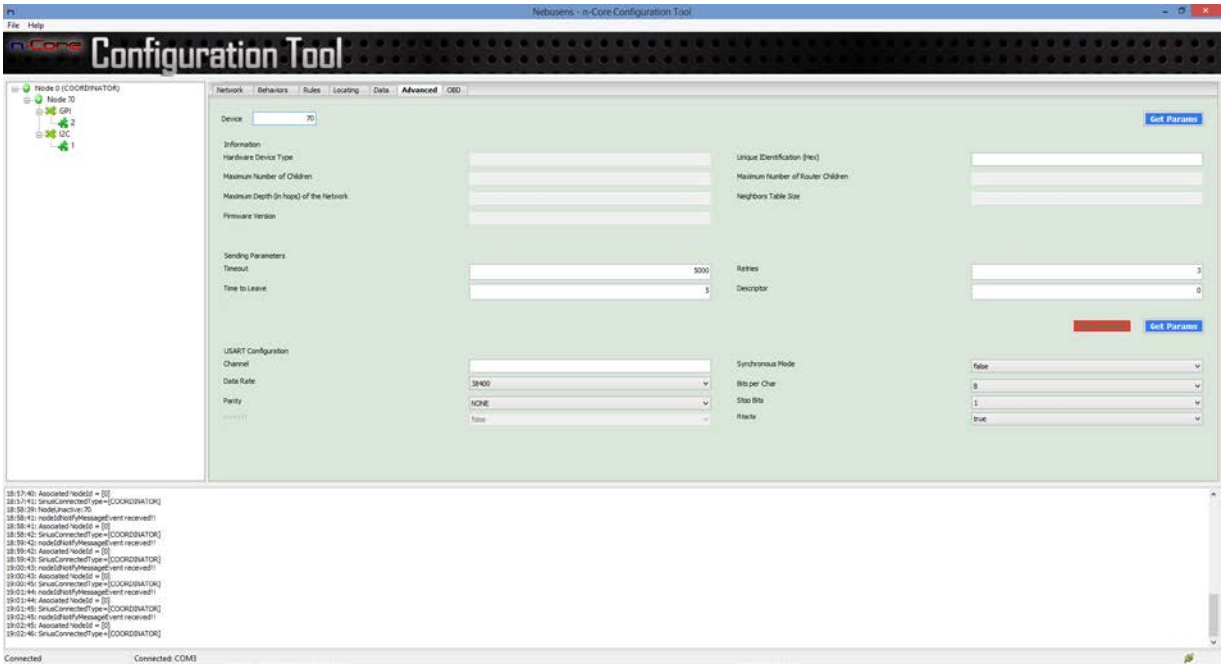
Step 2: select the destination node and choose the data format (hexadecimal or ASCII).

To receive data:

Step 1: select "*Register Messages*" and the data format (hexadecimal or ASCII). The data format must be the same when sending and receiving data.

5.4.6. Advanced

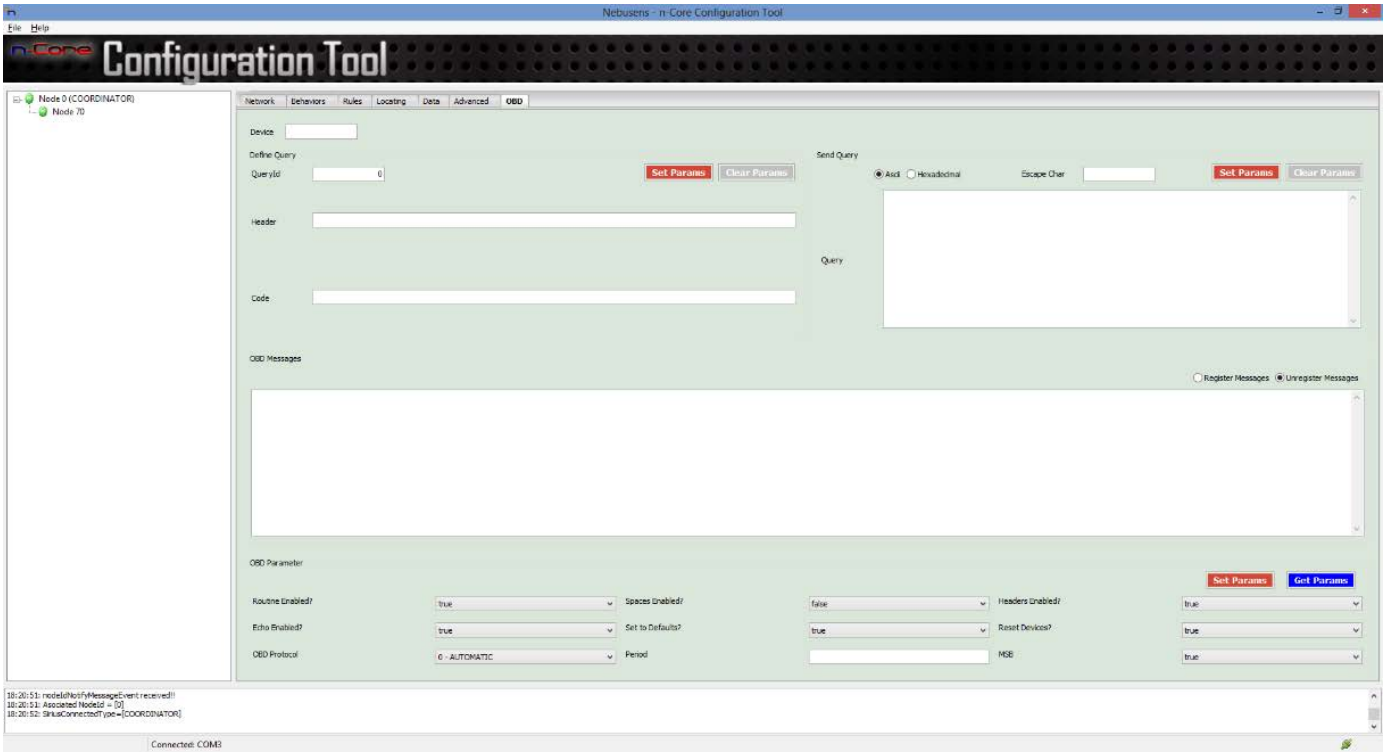
This tab allows modifying the parameters involved when sending and receiving commands.



Parameter	Description	Examples (units)
Hardware Device Type	Defines the node at hardware level: Sirius A, Sirius B/D or Sirius Quantum/RadIOn. *Read-only parameter.*	e.g., Sirius B/D (A, B/D or Q/R)
Unique IDentification	This UID is the device MAC and it is tied to the hardware. *Read-only parameter.*	e.g., 882100000001D5 (64-bit hexadecimal)
Maximum Number of Children	Maximum amount of children that each *Sirius* device can have. *Read-only parameter.*	e.g., 7
Maximum Number of Router Children	Maximum number of routers that can be children of a node in the ZigBee network. *Read-only parameter.*	e.g., 7
Maximum Depth (in hops) of the Network	Maximum depth of the ZigBee network (expressed in hops).	e.g., 8
Neighbors Table Size	Maximum number of neighbors that a node can have in the ZigBee network. *Read-only parameter.*	e.g., 8
Firmware Version	The version of the firmware running in the *Sirius* device. *Read-only parameter.*	e.g., 2.0.0.11
Timeout	Maximum time the configuration tool waits for a command response after sending a command request. After this timeout, the tool may retry if the *retries* parameter is higher than 0.	e.g., 5000 (milliseconds)
Retries	Number of retries when sending a command.	e.g., 3 (retries)
Time To Leave	Maximum number of hops allowed for a frame in the ZigBee network.	e.g., 5 (hops)
Descriptor	General purpose identifier. It is used to discriminate different applications.	e.g., 0 (0-15)
Channel	Defines the USART channel on the *n-Core Sirius* device. By default, use channel 0 for Sirius Quantum/RadIOn and 1 for Sirius A/B/D.	e.g., 0
Synchronous Mode	Selects the USART mode (synchronous or asynchronous). By default, use false (asynchronous mode).	e.g., false
Data Rate	Baud rate of the serial com port.	e.g., 38400
Bits per Char	Number of bits per character transmitted.	e.g., 8
Parity	Type of parity.	e.g., NONE
Stop Bits	Number of stop bits transmitted after each character.	e.g., 1
XonXoff	Enables/disables the software flow control.	e.g., false
Rtscts	Enables/disables the hardware flow control.	e.g., true

5.4.7. OBD

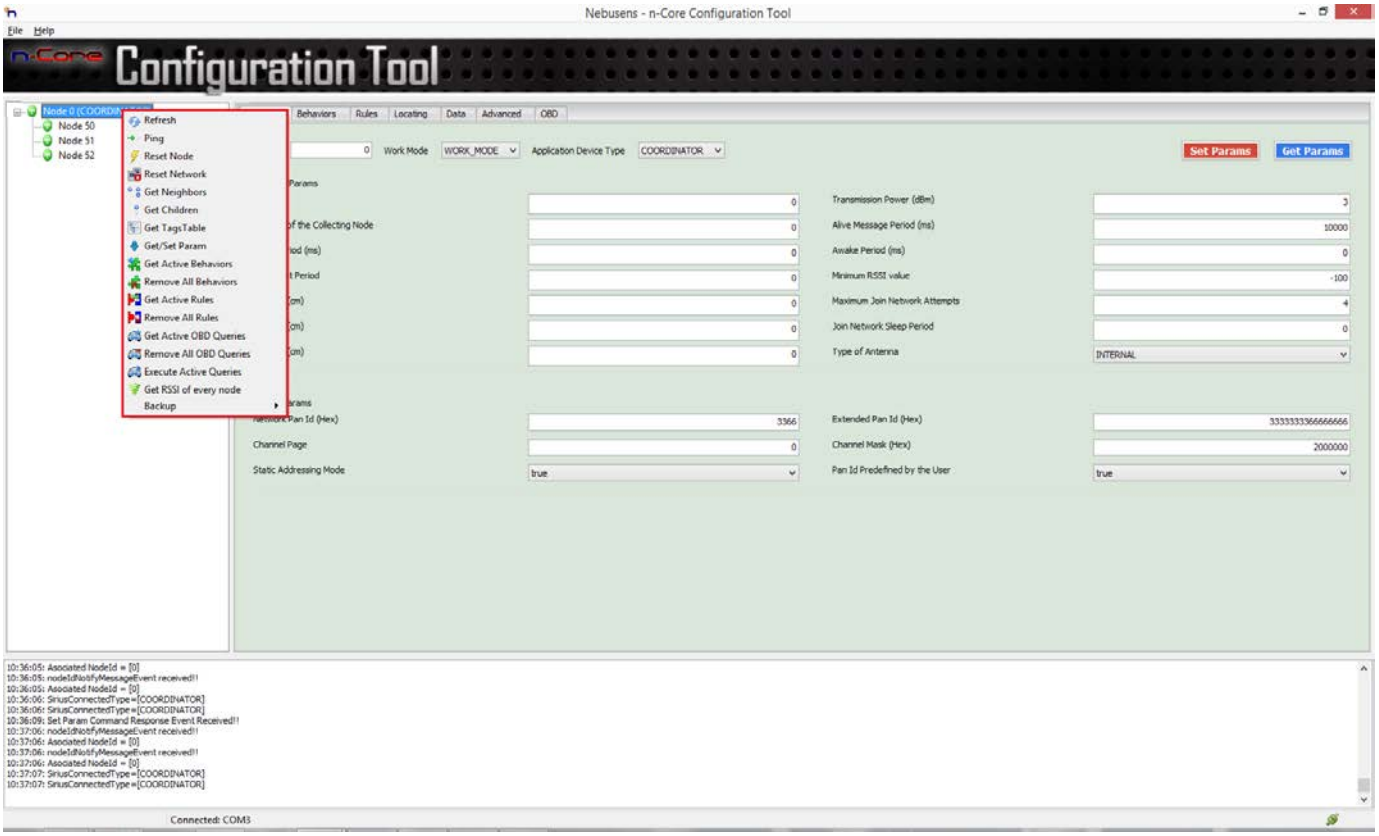
This tab allows sending and receiving frames between a*n-Core Sirius OBD*device and the vehicle's OBD (On Board Diagnostic) interface.



Parameter	Description	Examples (units)
Device	Destination node identifier.	e.g., 5
Query ID	Identifierof the query. *0 = NEW query (n-Core assigns a unique identifier perdevice). The query will be stored in the EEPROM of the n-Core Sirius device.*	e.g., 1 (0, 1-5) *(0 = new query)*
Header	Defines the header of the query that is sent.	e.g., 781
Code	Defines the code of the query that is sent.	e.g., 2101
Escape Char	It will be send at the end of the last character of the query field.	e.g., 0d
Query	General purpose field.It allows sending a request to the OBD interface as a query (header + code),AT command, etc.	e.g., 7812101, atd, atz.
OBD Messages	Displays the query message received periodically when the user has configured previously a query in a*n-Core Sirius*device.	e.g.,
Routine enabled	Enables/disables OBD routine.	e.g., true
Spaces enabled	Enables/disables spaces.	e.g., false
Headers enabled	Enables/disables headers.	e.g., true
Echo enabled	Enables/disables echo.	e.g., true
Set to Defaults	Sets the device to defaults.	e.g., true
Reset Devices	Resets the device.	e.g., true
OBD Protocol	Selects the protocol used by the OBD interface.	e.g., 0 - Automatic
Period	Defines the period for executing the OBD routine.	e.g., 2000 (Uint32)
MSB	Most Significant Byte order (true) or not (false for LSB).	e.g., true

5.5. Context menu

Provides a listing of commands to configure and access several functionalities over the *Sirius* devices. In order to show it, right click on a node in the *tree of nodes*.



This menu provides access to the following commands:

- **Ping.** Checks the status ofa certain devicein the network.The "*Destination Node*" can be set withthe logical address ofany *Sirius* device in the ZigBee network.
- **Reset Node.** Performs a*reset* in theselected *Sirius* device.There are two options:
  - **Reset RAM.** Restores allvalues saved in the RAM of the *n-CoreSirius* device.
  - **Reset to Default Params.** Restores all parameters to the default values.
- **Reset Network.**Makes the node to leave and rejoin the ZigBee network.This commandallows the followingparameters:
  - **Rejoin.** Indicates if the device will rejoin to the ZigBee network or not.
  - **Guard Time.**Time to wait until the device tries to rejoin the ZigBee network.
- **Get Neighbors.**Obtains the neighborsof the selected *n-CoreSirius* device. It shows the logical address ofeach one of them, the relationshipbetween the two devices(*Parent*,*Child*,*Sibling*, *None_of_Above*) as well as the RSSIandLQI values between the two *n-CoreSirius*devices.
- **Get Children.**Gets thechildren of theselected *n-CoreSirius* device. It showsthe logical address ofeach one of them.
- **Get TagsTable.** Gets the *Tags Table* of the selected *n-CoreSirius* device (*Router* only).
- **Get/Set Param.**Allowsgetting and settingall *Network*and *Locating*parameters manually.The parameters andfields are displayed ina pop-up window.

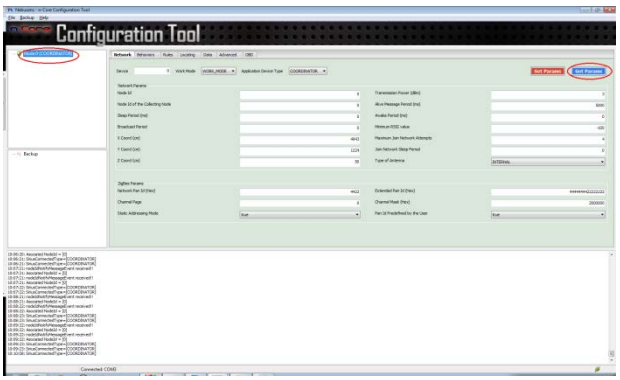
- **Get Active Behaviors.**Gets theactive behaviorsdefinedin the *n-CoreSirius* device.
- **Remove All Behaviors.**Deletes allbehaviors definedin the *n-CoreSirius* device.There are different types of deletion:
  - **Non Persistent.** Removes all non-persistent behaviors stored in the node.
  - **Persistent.** Removes all persistent behaviors stored in the node.
  - **Both Persistent & Non Persistent.** Removes all behaviors, both *persistent* and *non-persistent*.
- **Get Active Rules.**Gets theactive rulesdefinedin the *n-CoreSirius* device.
- **Remove All Rules.**This option removes all the rules definedin the *n-CoreSirius* device.
- **Get Active OBD Queries:** Gets the active OBD queries defined in the *n-CoreSirius* device.
- **Remove All OBD Queries:** Deletes all OBD queries defined in the *n-CoreSirius* device.
- **Execute Active Queries:** Executes all active queries, regardless of their period.
- **Get RSSI of every node:** Gets the RSSI of node alive frames received from each node. This option is enabled only if the selected node is the parent node of the tree.
- **Backup:**
  - **Network and locating parameters:**Stores all network and locating parameters. If any of the controls is empty, then the parameter of that tab will not be saved.
  - **Behaviors:**Stores all behaviors shown in tree of nodes.
  - **Rules:**Stores all rules shown in tree of nodes.
  - **OBD queries and parameter:** Stores all OBD queries shown in tree of nodes and all parameters in the *OBD* tab.

6. Backup

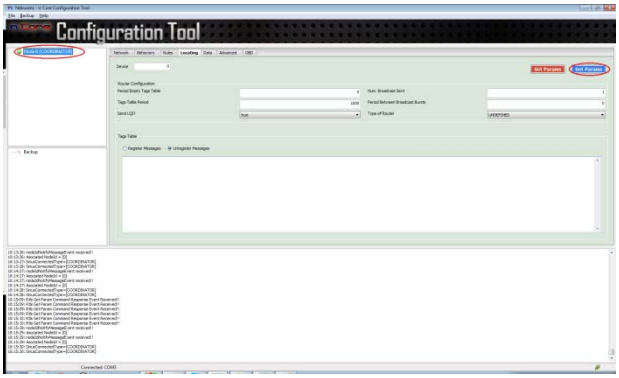
This feature allows you to save, in an xml file, the network and locating configuration, behaviors, rules and OBD queries previously defined.It also allows loading froman xml backup file all information to configure the *n-Core Sirius*devices.

6.1. Network and locating parameters

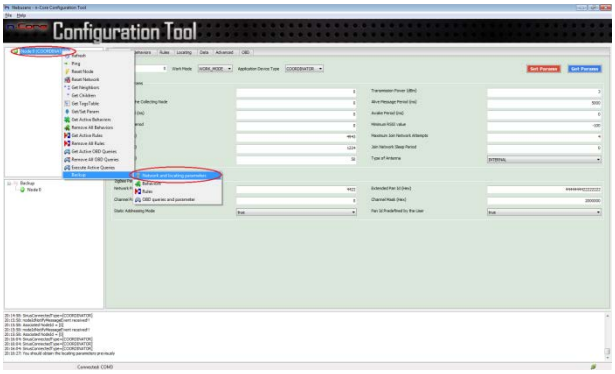
Step1: Get all network parameters. Go to the network tab and double-click on the target node, or select the node in the tree of active nodes, and press "*Get Params*".



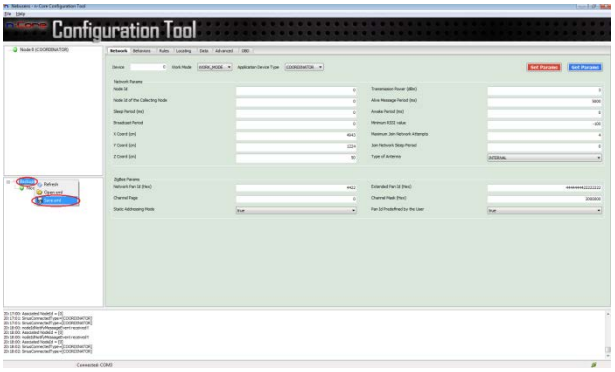
Step 2: Get all locating parameters. Go to the locating tab and double-click in the target node, or select the node in the tree of active nodes, and press "*Get Params*".



Step 3: Copy network and/or locating Parameters. Right-click the node in the tree of active nodes. Then press "Backup/*Network and locating parameters"*

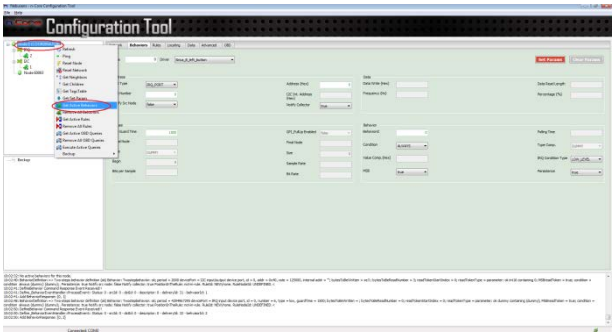


Step 4: Save network and locating configuration in an xml file. Right-click "*Backup*" in the backup of the tree of nodes. Then press "*Save xml*" and set the name of the xml file.



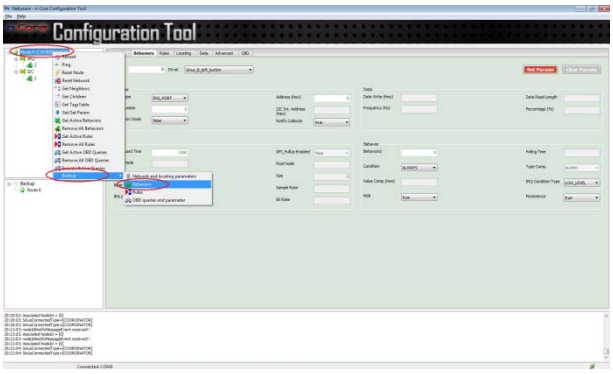
6.2. Save behaviors

Step 1: Get all behaviors. Go to the behaviors tab and double-click on the target node, or right-click the node in the tree of nodes and select "*Get Active Behaviors*"

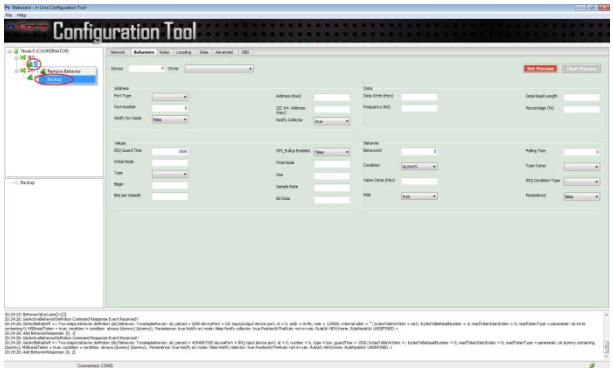


Step 2: Copy behaviors.

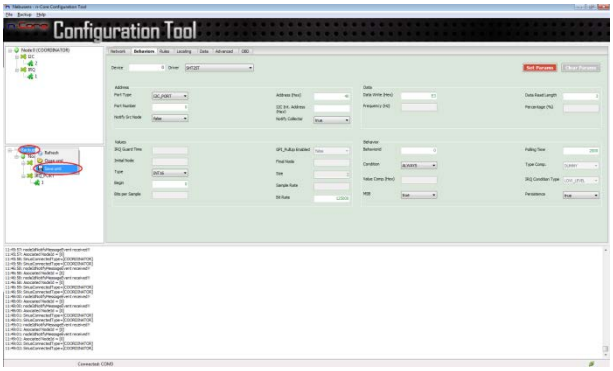
Step 2.1: Copy all behaviors. Right-click the node in the tree of nodes and press "*Backup/Behaviors*".



Step 2.2: Copy one behavior. Right-click the selected behavior in the tree of nodes and press "*Backup*".

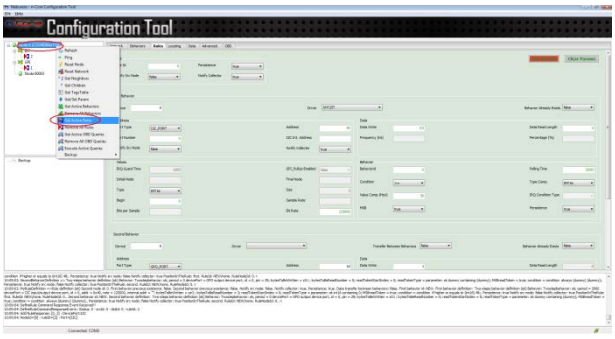


Step 3: Save behaviors in an xml file. Right-click "*Backup*" in the backup of the tree of nodes. Then press "*Save xml*" and set the name of the xml file.



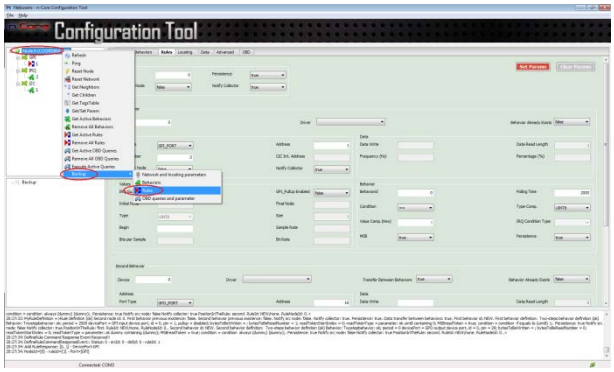
6.3. Save rules

Step 1: Get all rules of a node. Go to the rules tab and double-click on the target node, or right-click the node in the tree of active nodes and select "*Get Active Rules*".

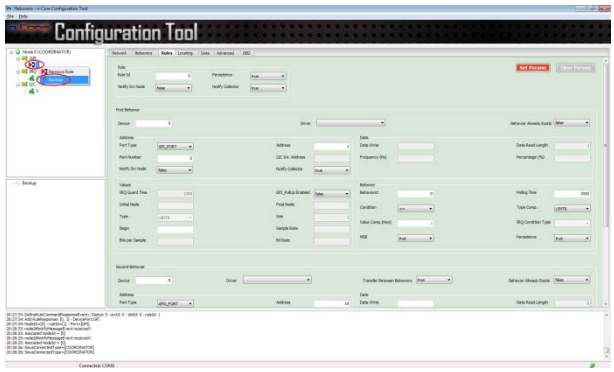


Step 2: Copy rules.

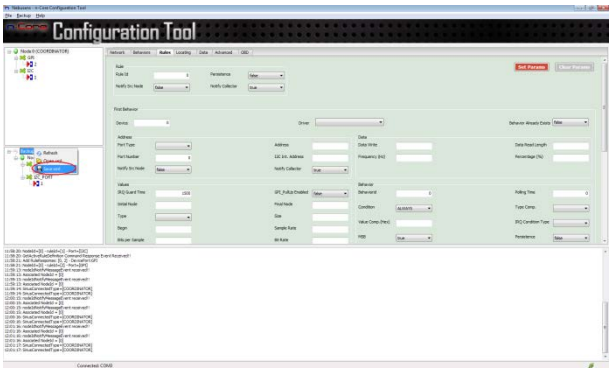
Step 2.1: Copy all rules. Right-click the node in the tree of nodes andpress "*Backup/Rules*"



Step 2.2: Copy one rule. Right-click the selected rule in the tree of nodes and press "*Backup*""



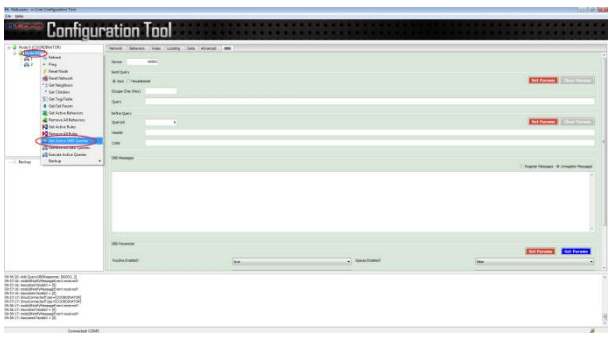
Step 3: Save rules in an xml file. Right-click "*Backup*" in the backup of the tree of nodes. Then press "*Save xml*" and set the name of the xml file.



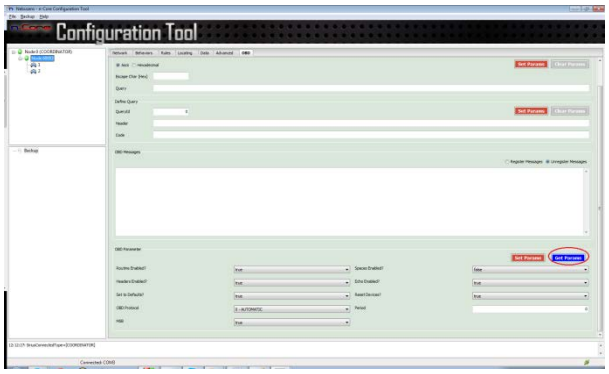
6.4. Save OBD queries and OBD parameter

To save the OBD configuration of ZigBee devices in xml file follow the next steps:

Step 1: Get all OBD queries of a node. Go to the OBD tab and double-click on the target node, or right-click the node in the tree of active nodes and select "*Get* Active OBD Queries".

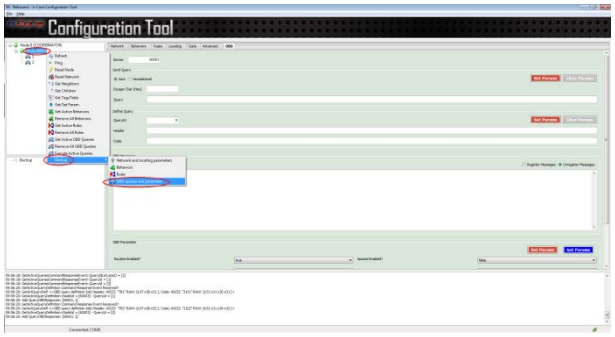


Step 2 (Optional): Get an OBD parameter. Go to the OBD tab andpress "*Get Params*" at bottom right inside the "*OBD Parameter*" section.

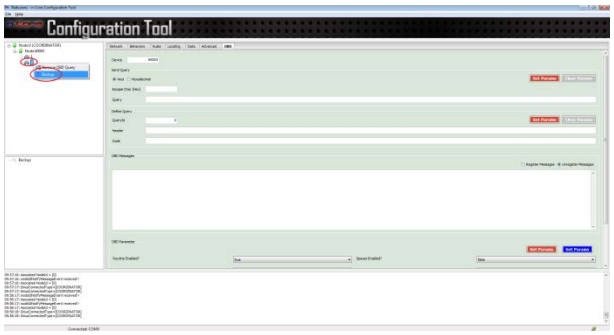


Step 3: Copy OBD queries and parameter.

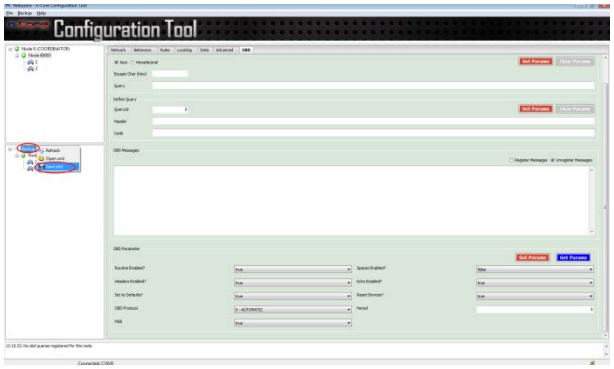
Step 3.1: Copy all OBD queries. Right-click the node in the tree of active nodes and press "*Backup"*



Step 3.2: Copy one OBD Query. Right-click the selected OBD query and press "*Backup*"

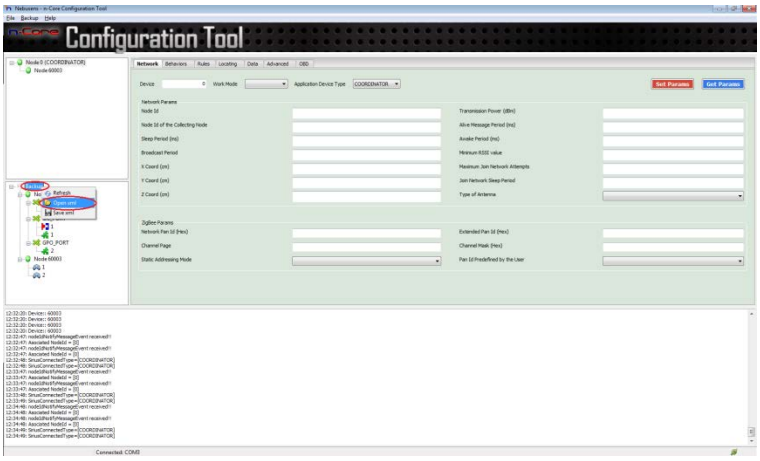


Step 4: Save OBD queries and parameter in an xml file. Right-click "*Backup*" in the backup of the tree of nodes. Then press "*Save xml*" and set the name of the xml file.

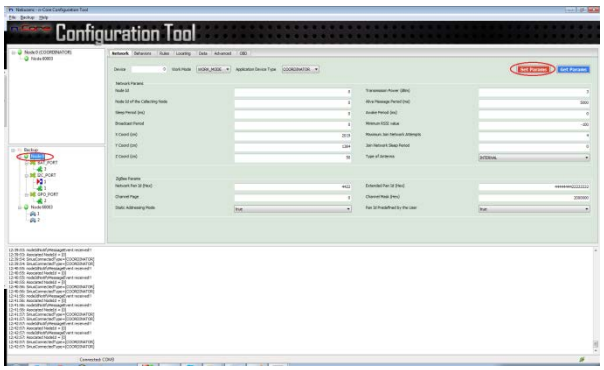


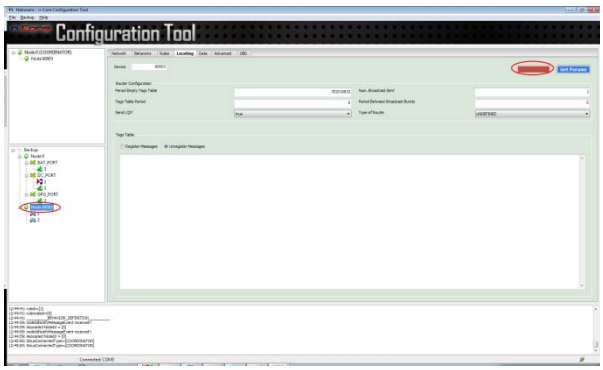
6.5. Load a configuration from an xml file

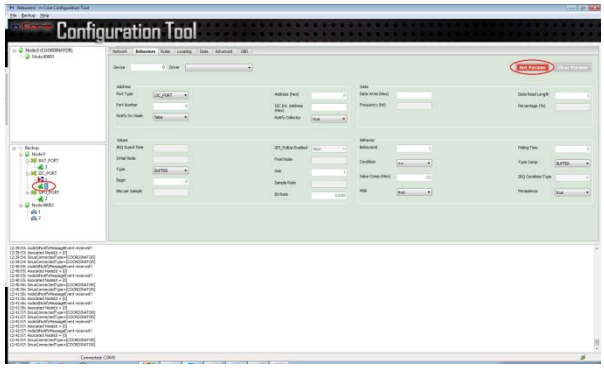
Step 1: Right-click on "*Backup*" in the tree of backup nodes and select "*Open xml*". Then select the xml file in the dialog window.

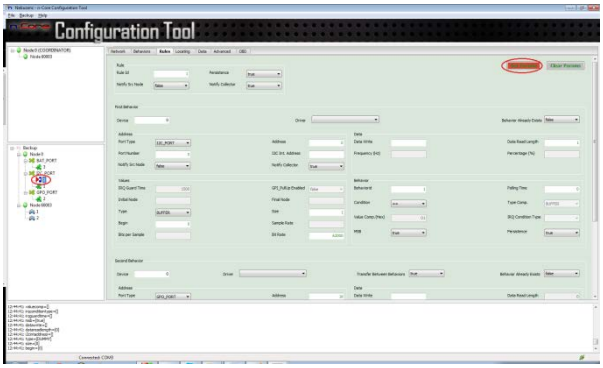


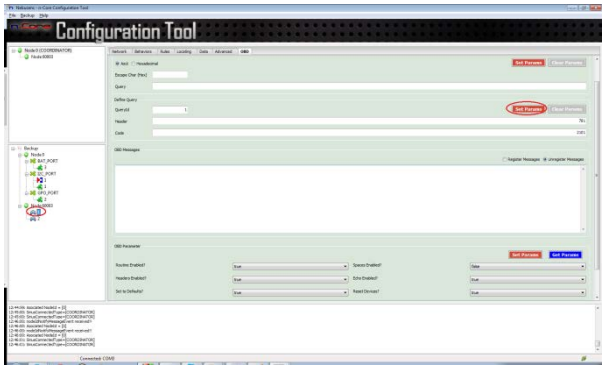
Step 2: Double-click in the node, behavior, rule or query in the tree of backup nodes on any tab. All controls of that tab will be automatically loaded. Then press "*Set Params*".











7. Additional information

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www.n-core.info